

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. – 13. (Canceled).

14. (currently amended): A sensor using metal enhanced fluorescence, comprising:
a light emitting diode (LED) having a conical shaped depression on a front end surface;
said conical shaped depression having curved sides;
said curved sides having a conductive coating on an outer surface with respect to said
LED; and

wherein a radius of curvature of said curved sides is set to provide directional emissions,
and

wherein said directional emissions are induced by a surface plasmon excitation of a
fluorophore disposed adjacent to said conductive coating.

15. (canceled).

16.(currently amended): A sensor according to claim [15] 14, wherein said conical
shaped depression contains a solution containing analytes or antibodies to be analyzed.

17. (currently amended): A sensor according to claim 16, further comprising:

an optical plug shaped to fit in said conical shaped depression;

a detector that detects ~~said~~ fluorescence emissions;

a fiber having a first and second end; and

said fiber coupled to said optical plug at said first end and said detector at said second end.

18. (currently amended): A sensor according to claim 14, further comprising:

a plasmon reflection signal detector; and

a fluorescence emissions detector; and

wherein said plasmon reflection signal detector is provided to detect said directional emissions and said fluorescence emissions detector is provided to detect ~~said~~ fluorescence emissions.

19. (currently amended): A sensor according to claim 14, wherein ~~said~~ a plasmon reflection signal and ~~said~~ a fluorescence emissions appear distinctly separated when viewed from the top of said LED.

20.(currently amended): A sensor according to claim [14] 18, wherein said plasmon reflection signal detector and said fluorescence emissions detector are located outside of said LED.

21.(currently amended): A sensor according to claim [14] 18, wherein said plasmon reflection signal detector and said fluorescence emissions detector are located inside of said LED.

22.(currently amended): A sensor according to claim 14, wherein a reflective surface is used to reflect said directed emissions to ~~said~~ a plasmon reflection signal detector and ~~said~~ fluorescence emissions to ~~said~~ a fluorescence emissions detector.

23.(original): A sensor according to claim 14, further comprising:
a porous silica layer on top of said conductive coating;
wherein said porous silica provides a size inclusion/exclusion sensing of different sized weakly fluorescent species.

24.(original): A method of detection, comprising:
forming a front end surface of a light emitting diode (LED) to have a depression with said depression having curved sides;
setting a radius of curvature of said curved sides to provide directional emissions;
coating on an outer surface of said curved sides with a conductive material; and
inducing directional emission by surface plasmon excitation of a fluorophore disposed adjacent to said conductive material.